

SEQUENCE LISTING

<110> Harrington, John J.
Sherf, Bruce
Rundlett, Stephen

<120> Compositions and Methods for Non-targeted Activation of Endogenous Genes

<130> 1522.0030004/MAC/BJD

<140> To be assigned

<141> 1999-03-26

<150> To be assigned

<151> 1999-03-08

<150> 09/253,022

<151> 1999-02-19

<150> 09/159,643

<151> 1998-09-24

<150> 08/941,223

<151> 1997-09-26

<160> 17

<170> PatentIn Ver. 2.0

<210> 1

<211> 39

<212> DNA

<213> Homo sapiens

<400> 1

tccttcgaag cttgtcatgg ttggttcgct aaactgcat

<210> 2
<211> 40
<212> DNA
<213> Homo sapiens

<400> 2
aaacttaaga tcgattaatc attcttctca tataacttcaa

40

<210> 3
<211> 28
<212> DNA
<213> Homo sapiens

<400> 3
atccaccatg gctacaggtg agtactcg

28

<210> 4
<211> 36
<212> DNA
<213> Homo sapiens

<400> 4
gatccgagta ctcacctgta gccatggtgg atttaa

36

<210> 5
<211> 33
<212> DNA
<213> Homo sapiens

<400> 5
ggcgagatct agcgctatat gcgttgc aat

33

<210> 6
<211> 51
<212> DNA
<213> Homo sapiens

<400> 6

ggccagatct gctaccttaa gagagccaa acaagcgctc atgagcccga a 51

<210> 7

<211> 6084

<212> DNA

<213> Homo sapiens

<400> 7

agatcttcaa tattggccat tagccatatt attcattggt tatatacgat aaatcaat 60
tggctattgg ccattgcata cggtgtatct atatcataat atgtacattt atattggctc 120
atgtccaata tgaccgcccattg attattgact agttattaat agtaatcaat 180
tacggggtca ttagttcata gcccataat ggagttccgc gttacataac ttacggtaaa 240
tgccccgcct ggctgaccgc ccaacgaccc ccggccattg acgtcaataa tgacgtatgt 300
tcccatagta acgccaatag ggactttcca ttgacgtcaa tgggtggagt atttacggta 360
aactgcccac ttggcagttac atcaagtgtt tcatatgcca agtccgcccc ctattgacgt 420
caatgacggtaatggcccg cctggcatta tgcccagttac atgaccttac gggactttcc 480
tacttggcag tacatctacg tattagtcat cgcttattacc atggtgatgc ggaaaaatggca 540
gtacaccaat gggcgtggat agcgggttga ctcacgggaa tttccaagtc tccacccat 600
tgacgtcaat gggagtttgc tttggcacca aaatcaacgg gactttccaa aatgtcgtaa 660
caactgcgtat cggccgcggcc gttgacgcaatggcggtt ggcgtgtacg gtgggagggtc 720
tatataagca gagctcgaaaatggcgtt agtgaaccgt cagatcacta gaagctttat tgcggtagtt 780
tatcacagtt aaattgtctaa cgcagtcgt gcttctgaca caacagtctc gaacttaagc 840
tgcagtgact ctcttaatttactccaccag tctcacttca gttccttttgc cttccaccag 900
tctcacttca gttccttttgc catgaagagc tcagaatcaa aagaggaaac caacccctaa 960
gatgagcttt ccatgtttat ttgttagccag cttccttctg atttcaatg tttcttccaa 1020
aggtgcagtc tccaaagaga ttacgaatgc cttggaaacc tgggtgcct tgggtcagga 1080
catcaacttg gacattccta gtttcaat gagtgatgtt attgacgata taaaatggga 1140
aaaaacttca gacaagaaaa agattgcaca attcagaaaa gagaaagaga ctttcaagga 1200
aaaagataca tataagctat taaaaatgg aactctgaaa attaagcattc tgaagaccga 1260
tgatcaggat atctacaagg tatcaatata tgatcacaaa ggaaaaaatgg tgggtggaaaa 1320
aatatttgcatttgaagattc aagagagggt ctcaaaacca aagatctcct ggacttgcgtat 1380
caacacaacc ctgacccgtg aggtaatgaa tggaactgac cccgaattaa acctgtatca 1440
agatggaaaa catctaaaac tttctcagag ggtcatcaca cacaagtggaa ccaccagcct 1500
gagtgcggaaa ttcaagtgcac cagcaggaa caaagtcagc aaggaatcca gtgtcgagcc 1560
tgtcagctgt ccagagaaag ggatccaggt gaggtagggcc cgatccttct agagtcgagc 1620
tctcttaagg tagcaaggtt acaagacagg tttaaggaga ccaatagaaa ctggcttgc 1680

cgagacagag aagactcttgcgttctgat aggacacctat tggtcttacg cggccgcgaa 1740
ttccaagctt gagtattcta tcgtgtcacc taaaataactt ggcgtaatca tggtcataatc 1800
tgtttcgtgt gtaaaattgt tatccgctca caattccaca caacatacga gccggaagca 1860
taaagtgtaa agcctgggt gcctaattgag tgagctaact cacattaatt gcgttgcgcg 1920
atgcttccat tttgtgaggg ttaatgcttc gagaagacat gataagatac attgatgagt 1980
ttggacaaac cacaacaaga atgcagtgaa aaaaatgctt tatttgtgaa atttgtgatg 2040
ctattgcttt atttgtaacc attataagct gcaataaaaca agttaacaac aacaattgca 2100
ttcattttat gtttcagggtt cagggggaga tgtgggaggt tttttaaagc aagtaaaacc 2160
tctacaaatg tggtaaaatc cgataaggat cgattccgga gcctgaatgg cgaatggacg 2220
cgccctgttag cggcgcatta agcgcggcgg gtgtgggtt tacgcgcacg tgaccgctac 2280
acttgccagc gcccctagcgc ccgctcctt cgtttcttc ctttccttgc tcgcccacgtt 2340
cgccggcttt ccccgtaag ctctaaatcg ggggctccct ttagggttcc gattttagtgc 2400
tttacggcac ctcgaccccc aaaaacttga ttagggtgat ggttcacgta gtgggccatc 2460
gccctgatag acggttttc gcccttgac gttggagtcc acgttctta atagtggact 2520
cttggcccaa actggAACAA cactcaaccc tatctcggtc tattcttttgc atttataagg 2580
gattttgccg atttcggcct attggtaaa aaatgagctg atttaacaaa aatttaacgc 2640
gaattttaac aaaatattaa cgcttacaat ttgcctgtg taccttctga ggcggaaaga 2700
accagctgtg gaatgtgtgt cagtttaggt gtggaaagtc cccaggctcc ccagcaggca 2760
gaagtatgca aagcatgcat ctcaatttagt cagcaaccag gtgtggaaag tccccaggct 2820
ccccaggcagg cagaagtatg caaagcatgc atctcaatta gtcagcaacc atagtccgc 2880
cccttaactcc gcccattcccg cccctaactc cgcccagttc cgcccattct ccgccccatg 2940
gctgactaat ttttttatt tatgcagagg ccgaggccgc ctggcctct gagctattcc 3000
agaagtagtg aggaggctt tttggaggcc taggcttttgc caaaaagctt gattcttctg 3060
acacaacagt ctcgaactta aggctagagc caccatgatt gaacaagatg gattgcacgc 3120
agttctccg gcccattcccg tggagaggct attcggctat gactggcac aacagacaat 3180
cgctgctct gatgccgcgg tggtccggct gtcagcgcag gggcgcccggtt tttttttgt 3240
caagaccgac ctgtccgggtg ccctgaatga actgcaggac gaggcagcgc ggctatcg 3300
gctggccacg acgggcgttc cttgcgcagc tggctcgac gttgtcaactg aagcgggaag 3360
ggactggctg ctattggcg aagtgcgggg gcaggatctc ctgtcatctc accttgctcc 3420
tggccgagaaa gtatccatca tggctgatgc aatgcggcgg ctgcatacgc ttgatccggc 3480
tacctgcccc ttcgaccacc aagcgaaaca tcgcatacgag cgagcacgtt ctcggatgg 3540
agccggctt gtcgatcagg atgatctgga cgaagagcat cagggctcg cgccagccga 3600
actgttcgcgc aggctcaagg cgccatgcgc cgcgcgttc gatctcgatg tgaccctgg 3660
cgatgcctgc ttgcccataa tcatgggttga aaatggccgc ttttctggat tcatcgactg 3720
tggccggctg ggtgtggcgg accgctatca ggacatagcg ttggctaccc gtgatattgc 3780
tgaagagctt ggcggcgaat gggctgaccg cttcctcgatg ctttacggta tcgcccacgtt 3840
cgattcgacg cgcacatcgcc tctatcgcc tcttgacgag ttcttctgag cgggactctg 3900

gggttcgaaa tgaccgacca agcgacgccc aacctgccat cacgatggcc gcaataaaat 3960
atctttattt tcattacatc tgtgtgttgg ttttttgtt gaagatccgc gtatggtgca 4020
ctctcagtac aatctgctct gatgccgcatt agttaagcca gccccgacac cccccaacac 4080
ccgctgacgc gccctgacgg gcttgcgtgc tcccgcatc cgcttacaga caagctgtga 4140
ccgtctccgg gagctgcatttgc tttcaccgtt atcaccgaaa cgcgcgagac 4200
gaaagggcct cgtgatacgc ctattttat aggttaatgt catgataata atggtttctt 4260
agacgtcagg tggcactttt cggggaaatg tgcgcggAAC ccctatttgt ttatTTTCTT 4320
aaatacattt aaatatgtat ccgctcatga gacaataacc ctgataaaatg cttcaataat 4380
attgaaaaag gaagagtatg agtattcaac atttccgtgt cgcccttatt cccttttttg 4440
ccgcatttttgc cttcctgtt tttgctcacc cagaaacgct ggtgaaagta aaagatgctg 4500
aagatcagg gggtgcacga gtgggttaca tcgaacttggaa tctcaacagc ggtaagatcc 4560
ttgagagttt tcgccccgaa gaacgttttcaatgatgag cactttaaa gttctgctat 4620
gtggcgcggattatccgtt attgacgcccggcaagagca actcggtgcgc cgcatacact 4680
attctcagaa tgacttggtt gagtactcac cagtcacaga aaagcatctt acggatggca 4740
tgacagtaag agaattatgc agtgcgttcca taaccatgag tgataaacact gcccggaaact 4800
tacttctgac aacgatcgga ggaccgaagg agctaaccgc tttttgcac aacatggggg 4860
atcatgtAAC tcgccttgat cggtggaaac cggagctgaa tgaagccata ccaaacgacg 4920
agcgtgacac cacgatgcctt gtagcaatgg caacaacggtt gcgcggAAacta ttaactggcg 4980
aactacttac tctagcttcc cggcaacaat taatagactg gatggaggcg gataaagttt 5040
caggaccact tctgcgctcg gcccttcgg ctggctggtt tattgtgtat aaatctggag 5100
ccgggtgagcg tgggtctcgcc ggtatcattt cagcactgggg gccagatgggt aagccctccc 5160
gtatcgtagt tatctacacg acggggagtc aggcaactat ggtgaacga aatagacaga 5220
tcgctgagat aggtgcctca ctgattaagc attggtaact gtcagaccaa gtttactcat 5280
atatacttta gattgatttta aaacttcatt tttaatttta aaggatctag gtgaagatcc 5340
tttttgataa tctcatgacc aaaatccctt aacgtgagtt ttcgttccac tgagcgtcag 5400
accccgtaga aaagatcaaa ggatcttctt gagatccctt tttctgcgc gtaatctgct 5460
gcttgcaaacc aaaaaaaacca ccgctaccag cgggggttttgc tttgccggat caagagctac 5520
caactctttt tccgaaggta actggcttca gcagagcgca gataccaaat actgtccttc 5580
tagttagcc gtagtttaggc caccacttca agaactctgt agcaccgcct acatacctcg 5640
ctctgctaat cctgttacca gtggctgtgc ccagtggcgtaa tttgtgtgtt cttaccgggt 5700
tggactcaag acgatagttt ccggataagg cgcagcggtt gggctgaacg ggggggttcgt 5760
gcacacagcc cagcttggag cgaacgaccc acaccgaact gagataaccta cagcgtgagc 5820
tatgagaaag cgccacgctt cccgaaggaa gaaaggcgga caggtatccg gtaagcggca 5880
gggtcgaaac aggagagcgac acgagggagc ttccaggggg aaacgcctgg tatctttata 5940
gtcctgtcggtt tttcgccac ctctgacttgc agcgtcgatt tttgtgtatgc tcgtcagggg 6000
ggcggagcctt atggaaaaac gccagcaacg cggccctttt acggttccctg gccttttgc 6060
ggccttttgc tcacatggct cgac

<210> 8
<211> 6085
<212> DNA
<213> Homo sapiens

<400> 8
agatcttcaa tattggccat tagccatatt attcattggt tatatacgat aaatcaatat 60
tggctattgg ccattgcata cggtgtatct atatcataat atgtacattt atattggctc 120
atgtccaata tgaccgcccattt gttggcattt attattgact agttataat agtaatcaat 180
tacggggtca tttagttcata gcccatatat ggagttccgc gttacataac ttacggtaaa 240
tggccgcct ggctgaccgc ccaacgaccc ccggccattt acgtcaataa tgacgtatgt 300
tccccatagta acgccaatag ggactttcca ttgacgtcaa tgggtggagt atttacggta 360
aactgcccac ttggcagtttac atcaagtgtt tcatatgcca agtccgcccc ctattgacgt 420
caatgacggt aaatggcccg cctggcattt tgcccaatggc atgacccattt gggactttcc 480
tacttggcag tacatctacg tattagtcattt cgctatttacc atggtgatgc gggtttggca 540
gtacaccaat gggcgtggat agcggtttga ctcacgggaa tttccaagtc tccacccat 600
tgacgtcaat gggagtttgc ttggcacca aaatcaacgg gactttccaa aatgtcgtaa 660
caactgcgtat cggccgcctt gttgacgcaa atgggcggta ggcgtgtacg gtgggaggc 720
tatataagca gagctcgaaa agtgaaccgtt cagatcacta gaagctttat tgccgttagtt 780
tatcacagtt aaattgctaa cgcagtcgtt gcttctgaca caacagtctc gaacttaagc 840
tgcagtgact ctcttaatta actccaccag tctcacttca gttcccttttgc cctccaccag 900
tctcacttca gttcccttttgc catgaagagc tcagaatcaa aagagggaaac caacccctaa 960
gatgagcttt ccatgtttat ttgttagccag cttcccttctg atttcaatgt tttcttccaa 1020
aggtgcgttc tccaaagaga ttacgaatgc cttggaaacc tgggtgcct tgggtcagga 1080
catcaacttgc gacattccta gtttcaatgtt gagtgatgtt attgacgata taaaatggga 1140
aaaaacttca gacaagaaaa agattgcaca attcagaaaa gagaaagaga ctttcaagga 1200
aaaagataca tataagctat taaaaatgg aactctgaaa attaagcatc tgaagaccga 1260
tgatcaggat atctacaagg tatcaatata tgataaaaaa ggaaaaaatgt tggtggaaaa 1320
aatatttgc ttgaagattc aagagagggt ctcaaaaacca aagatctcct ggacttgtat 1380
caacacaacc ctgacccgttgc aggtaatgaa tggaaactgac cccgaattaa acctgtatca 1440
agatggaaa catctaaaac tttctcagag ggtcatcaca cacaagtggc ccaccagcct 1500
gagtgcaaaa ttcaagtgc cagcaggaa caaagtgcgc aaggaatcca gtgtcgagcc 1560
tgtcagctgt ccagagaaag ggatcccagg tgagttagggc ccgatccttc tagagtcgag 1620
ctctcttaag gtagcaaggt tacaagacag gtttaaggag accaatacgaa actgggcttg 1680
tcgagacaga gaagactctt gcgtttctga taggcaccta ttggtcttac gcggccgcga 1740
attccaagct tgagtattct atcgtgtcac ctaaataact tggcgtaatc atggtcatat 1800

ctgtttcctg tgtgaaattt ttatccgctc acaattccac acaacatacg agccggaagc 1860
ataaaagtgtt aaggcctgggg tgcctaatacg gtgagctaac tcacattaat tgcgttgccc 1920
gatgcttcca ttttgtgagg gttaatgcct cgagaagaca tgataagata cattgtatgag 1980
tttggacaaa ccacaacaag aatgcagtga aaaaaatgct ttatgttgc aatttgcgtat 2040
gctattgctt tatttgcac cattataagc tgcaataaac aagttacaa caacaattgc 2100
attcatttttta tgtttcaggt tcagggggag atgtggagg tttttaaag caagtaaaac 2160
ctctacaaat gtggtaaaat ccgataagga tcgattccgg agcctgaatg gcgaatggac 2220
gcgcctgtt gccccgcatt aagcgcggcg ggtgtgggtt ttacgcgcac gtgaccgcta 2280
cacttgcacag cgcccttagcg cccgctcctt tcgctttctt cccttcctt ctcgccacgt 2340
tcgcccgtt tccccgtcaa gctctaaatc gggggctccc tttaggggtt cgatttatgt 2400
ctttacggca cctcgacccc aaaaaacttgc attagggtga tggttcacgt agtgggcat 2460
cgccctgata gacggttttt cgcccttgc cgttggagtc cacgttctt aatagtggac 2520
tcttgttcca aacttggaaaca acactcaacc ctatctcggt ctattctttt gatttataag 2580
ggattttgc gatttcggcc tattggtaa aaaatgagct gatttaacaa aaatttaacg 2640
cgaattttaa caaaatatta acgcttacaa ttgcctgtt gtacctctg aggccgaaag 2700
aaccagctgt ggaatgtgtg tcagttaggg tggaaagt ccccaggctc cccagcagggc 2760
agaagtatgc aaagcatgca tctcaatttgc tcagcaacca ggtgtggaaa gtccccagggc 2820
tccccagcag gcagaagtat gcaaagcatg catctcaatttgc acatgtcccc 2880
cccctaactc cgcccatccc gcccctaact ccgcccagtt ccgcccattc tccgccccat 2940
ggctgactaa ttttttttat ttatgcagag gcccaggccg cctcggcctc tgagctattc 3000
cagaagtagt gaggaggctt tttggaggc ctaggctttt gcaaaaagct tgattttct 3060
gacacaacag tctcgaactt aaggcttagag ccaccatgtat tgaacaagat ggattgcacg 3120
cagggttctcc ggccgcttgg gtggagagggc tattcggcta tgactggca caacagacaa 3180
tcggctgctc tcatgttccgcgtt gtgttccggc tgcgttgcgc gggcgccccg gttcttttgc 3240
tcaagaccga cctgtccggcgtt gcccctaactt aacttgcagga cgaggcagcg cggctatcgt 3300
ggctggccac gacggcggtt ctttgcgcag ctgtgctcga cgttgcactt gaagcgggaa 3360
gggactggct gctattgggc gaagtgcggg ggcaggatct cctgtcatct caccttgcctc 3420
ctggccgagaa agtattccatc atggctgtatc caatgcggcg gctgcatacg cttgtatccgg 3480
ctacctgccc attcgaccac caagcgaaac atcgcatcga gcgagcacgt actcggatgg 3540
aagccggctt tgcgtatcgt gatgtatcgtt acgaagagca tcagggctc ggcggccgg 3600
aactgttgc caggctcaag ggcgcgcatacg ccgcacggcga ggcgcgcatacg gtgaccatc 3660
gcgatgcctg ctttgcgaat atcatgggtt gggatggccg cttttcttgc ttcatcgact 3720
gtggccggctt gggatggccg gaccgctatc aggacatagc gttggctacc cgtatgttgc 3780
ctgaagatgtt tggccggcgtt tggctgtatcgtt gctttacgtt atcgccgcctc 3840
ccgattcgc ggcgcatacg ccgcacggcga ggcgcgcatacg gtgaccatc 3900
ggggatggccaa atgaccgacc aagcgacgcc caacctgcac tcaacatggc cgcaataaaa 3960
tatcttttattt ttcattacat ctgtgtgttgc gtttttgc tgaagatccg cgtatggcgtc 4020

actctcagta caatctgctc tgatgccga tagttaagcc agccccgaca cccgccaaca 4080
cccgctgacg cgccctgacg ggcttgtctg ctcccggcat ccgcttacag acaagctgtg 4140
accgtctccg ggagctgcat gtgtcagagg ttttcaccgt catcaccgaa acgcgcgaga 4200
cgaaagggcc tcgtgatacg cctatttta taggtaatg tcatgataat aatggttct 4260
tagacgtcag gtggacttt tcggggaaat gtgcgcggaa cccctatttgc ttatTTTC 4320
taaatacatt caaatatgta tccgctcatg agacaataac cctgataaaat gcttcaataa 4380
tattgaaaaa ggaagagtat gagtattcaa catttccgtg tcgccttat tcccttttt 4440
gccccatTTT gccttcctgt ttttgcTcac ccagaaacgc tggtaaaagt aaaagatgct 4500
gaagatcagt tgggtgcacg agtgggttac atcgaactgg atctcaacag cggtaagatc 4560
cttgagagtt ttccggccga agaacgtttt ccaatgatga gcactttaa agttctgcta 4620
tgtggcgcgg tattatcccgtt tattgacGCC gggcaagagc aactcggtcg cccatCACAC 4680
tattctcaga atgacttggt tgagtactca ccagtcacag aaaagcatct tacggatggc 4740
atgacagtaa gagaattatg cagtgtgcc ataaccatga gtgataaacac tgcggccaac 4800
ttacttctga caacgatcg aggaccgaag gagctaaccg ctTTTTGCA caacatgggg 4860
gatcatgtaa ctgccttga tcgttggaa ccggagctga atgaagccat accaaacgac 4920
gagcgtgaca ccacgatgcc ttagcaatg gcaacaacgt tgcgcaaact attaactggc 4980
gaactactta ctctagcttc ccggcaacaa ttaatagact ggtggaggc ggataaaagtt 5040
gcaggaccac ttctgcgctc ggcccttccg gctggctggg ttattgctga taaatctgga 5100
gcccgtgagc gtgggtctcg cggtatcatt gcagcactgg ggccagatgg taagccctcc 5160
cgtatctgtt tagtctacac gacggggagt caggcaacta tggatgaaacg aaatagacag 5220
atcgctgaga taggtgcctc actgattaag catggtaac tgtcagacca agtttactca 5280
tatatacttt agattgattt aaaacttcat ttttaattta aaaggatcta ggtgaagatc 5340
ctttttgata atctcatgac caaaatccct taacgtgagt ttctgttcca ctgagcgtca 5400
gacCCCGTAG aaaagatcaa aggtttctc tgagatcctt ttttctgctg cgtaatctgc 5460
tgcttgcaaa caaaaaaaacc accgctacca gcggtggttt gtttgcggaa tcaagagcta 5520
ccaactcttt ttccgaaggt aactggcttc agcagagcgc agataccaa tactgtcctt 5580
ctagttagc ctagttagg ccaccatTC aagaactctg tagcaccGCC tacatacctc 5640
gctctgctaa tcctgttacc agtggctgct gccagtggcg ataagtcgtg tcttaccggg 5700
ttggactcaa gacgatagtt accggataag ggcgcggcgtt cgggctgaac ggggggttcg 5760
tgcacacagc ccagcttggaa gcaacgacc tacaccgaac tgagataacct acagcgtgag 5820
ctatgagaaa gcgccacgct tcccgaaggg agaaaggcgg acaggtatcc ggtaagcggc 5880
agggtcgaa caggagagcg cacgagggag cttccagggg gaaacgcctg gtatctttat 5940
agtccctgtcg ggtttcgcca cctctgactt gagcgtcgat ttttgcgtatc ctcgtcagg 6000
gggcggagcc tatggaaaaa cgccagcaac gcggccttt tacggatcctt ggcctttgc 6060
tggccttttgc ctcacatggc tcgac 6085

<211> 6086

<212> DNA

<213> Homo sapiens

<400> 9

agatcttcaa tattggccat tagccatatt attcatttgt tatatacgat aaatcaatat 60
tggctattgg ccattgcata cgttgtatct atatcataat atgtacattt atattggctc 120
atgtccaata tgaccgccc gttggcattt attattgact agttattaat agtaatcaat 180
tacggggtca ttagttcata gcccatatat ggagttccgc gttacataac ttacggtaaa 240
tggcccgct ggctgaccgc ccaacgaccc ccccccattt acgtcaataa tgacgtatgt 300
tccccatagta acgccaatag ggactttcca ttgacgtcaa tgggtggagt atttacggta 360
aactgcccac ttggcagtac atcaagtgtt tcatatgcca agtccgcccc ctattgacgt 420
caatgacggt aaatggcccg cctggcatta tgcccagtac atgaccttac gggactttcc 480
tacttggcag tacatctacg tattagtcat cgctattacc atggtgatgc gggtttggca 540
gtacaccaat gggcgtggat agcggtttga ctacacgggaa tttccaagtc tccaccccat 600
tgacgtcaat gggagtttgc tttggcacca aaatcaacgg gactttccaa aatgtcgtaa 660
caactgcgat cgcccccccc gttgacgcaa atggcggtt ggcgtgtacg gtgggagggtc 720
tatataagca gagctcggtt agtgaaccgt cagatcacta gaagctttat tgccgttagtt 780
tacacagtt aaattgctaa cgcaagtca gcttctgaca caacagtctc gaacttaagc 840
tgcagtgact ctcttaatta actccaccag tctcacttca gttccttttgc cctccaccag 900
tctcacttca gttccttttgc catgaagagc tcagaatcaa aagagggaaac caacccctaa 960
gatgagcttt ccatgttaat ttgttagccag cttcccttctg atttcaatg tttcttccaa 1020
aggtgcagtc tccaaagaga ttacgaatgc cttggaaacc tgggtgcct tgggtcagga 1080
catcaacttg gacattccta gtttcaaat gagtgatgtt attgacgata taaaatggga 1140
aaaaacttca gacaagaaaa agattgcaca attcagaaaa gagaaagaga ctttcaaggg 1200
aaaagataca tataagctat taaaaatgg aactctgaaa attaagcatc tgaagaccga 1260
tgatcaggat atctacaagg tatcaatata tgataaaaa ggaaaaatgg tggggaaaa 1320
aatatttgat ttgaagattc aagagagggt ctcaaaacca aagatctcct ggacttgc 1380
caacacaacc ctgacctgtg aggtatgaa tggaaactgac cccgaattaa acctgtatca 1440
agatggggaaa catctaaaac tttctcagag ggtcatcaca cacaagtggc ccaccagcct 1500
gagtgcaaaa ttcaagtgc cagcaggaa caaagtgc aaggaatcca gtgtcgagcc 1560
tgtcagctgt ccagagaaag ggatccacag gtgagtaggg cccgatcctt ctagagtcga 1620
gctctcttaa ggttagcaagg ttacaagaca ggttaagga gaccaataga aactggcctt 1680
gtcgagacag agaagactct tgcgtttctg ataggcacctt attggctta cgcggccgc 1740
aattccaagc ttgagtttc tatcgtgtca cctaaataac ttggcgtaat catggtcata 1800
tctgtttcct gtgtgaaatt gttatccgc cacaattcca cacaacatac gagccggaag 1860
cataaagtgt aaagcctggg gtgcctaattt agtgcgttgcg 1920

cgatgcttcc attttgtag ggttaatgct tcgagaagac atgataagat acattgatga 1980
gttggacaa accacaacaa gaatgcagtg aaaaaaatgc tttatttgta aaatttgta 2040
tgctattgct ttattgtaa ccattataag ctgcaataaa caagttaca acaacaattg 2100
cattcattt atgtttcagg ttcagggga gatgtggag gtttttaaa gcaagtaaaa 2160
cctctacaaa tgtggtaaaa tccgataagg atcgattccg gagcctgaat ggcgaatgga 2220
cgccccctgt agcggcgcat taagcgccgc gggtgtggtg gttacgcgca cgtgaccgct 2280
acacttgcca gcgccttagc gccgcctcct ttcgccttct tcccttcctt tctgccacg 2340
ttcgccggct ttcccggtca agctctaaat cggggctcc ctttagggtt ccgatttagt 2400
gtttacggc acctcgaccc caaaaactt gattagggtg atggttcacg tagtggcca 2460
tcgcccgtat agacggttt tcgcccctt acgttggagt ccacgttctt taatagtgga 2520
ctcttggccc aaactggaac aacactcaac cctatctcg tctattctt tgatttataa 2580
gggattttgc cgatttcggc ctattggta aaaaatgago tgatttaaca aaaatttaac 2640
gcaattttta acaaaatatt aacgcttaca atttcgcctg tgtaccttct gaggcggaaa 2700
gaaccagctg tggaatgtgt gtcagttagg gtgtggaaag tccccaggct ccccagcagg 2760
cagaagtatg caaagcatgc atctcaatta gtcagcaacc aggtgtggaa agtccccagg 2820
ctccccagca ggcagaagta tgcaaagcat gcatctcaat tagtcagcaa ccatagtccc 2880
gccctaact ccgcctatcc cgcccttaac tccgcctcgt tccgccttatt ctccgccttca 2940
tggctgacta attttttta ttatgcaga ggccgaggcc gcctggcct ctgagctatt 3000
ccagaagtag tgaggaggct ttttggagg cctaggctt tgcaaaaagc ttgatttttc 3060
tgacacaaca gtctcgaaact taaggctaga gccaccatga ttgaacaaga tggattgcac 3120
gcaggcttc cggccgctt ggtggagagg ctattcgct atgactggc acaacagaca 3180
atcggtcgct ctgatgcccgc cgtgttccgg ctgtcagcgc agggcgccc ggttttttt 3240
gtcaagaccg acctgtccgg tgcctgaat gaactgcagg acgaggcagc gcggctatcg 3300
tggctggcca cgacggcggt tccttgcga gctgtgcgt acgttgcac tgaagcggga 3360
agggactggc tgctattggg cgaagtggcg gggcaggatc tcctgtcattc tcaccctgct 3420
cctgccgaga aagtatccat catggctgat gcaatgcggc ggctgcatac gcttgatccg 3480
gctacctgcc cattcgacca ccaagcgaaa catcgcatcg agcgagcacg tactcgatg 3540
gaagccggc ttgtcgatca ggatgatctg gacgaagagc atcaggggct cgcccgagcc 3600
gaactgttcg ccaggctaa ggccgcgtatg cccgacggcg aggatotcgt cgtgaccat 3660
ggcgatgcct gcttggaa tatcatggt gaaaatggcc gctttctgg attcatcgac 3720
tgtggccggc tgggtgtggc ggaccgctat caggacatag cgtggctac ccgtgatatt 3780
gctgaagagc ttggccggcga atgggctgac cgcttcctcg tgcttacgg tatcgccgct 3840
cccgattcgc agcgcatcgc cttctatcgc cttcttgcg agttcttcgt agcgggactc 3900
tgggttcga aatgaccgac caagcgacgc ccaacctgcc atcacgatgg cccgaataaa 3960
atatctttat ttccattaca tctgtgtgtt ggtttttgtt gtgaagatcc gcttatggtg 4020
cactctcagt acaatctgct ctgatgcccgc atagttauc cagccccgac acccgccaac 4080
acccgctgac gcgcctgac gggcttgc tccgccttaca gacaagctgt 4140

gaccgtctcc gggagctgca tgtgtcagag gtttcacccg tcatcaccga aacgcgcgag 4200
acgaaaggc ctcgtatac gcctatttt ataggttaat gtcataataa taatggttc 4260
ttagacgtca ggtggcactt ttccggaaa tgtgcgcga acccctattt gtttatttt 4320
ctaaatacat tcaaataatgt atccgctcat gagacaataa ccctgataaa tgcttcaata 4380
atattgaaaa aggaagagta tgagtattca acatttccgt gtcgcctta ttccctttt 4440
tgcggcattt tgccttcctg ttttgctca cccagaaaacg ctggtgaaag taaaagatgc 4500
tgaagatcag ttgggtgcac gagtgggta catgaactg gatctaaca gcggtaagat 4560
ccttgagagt ttccggcccg aagaacgtt tccaatgtatg agcaacttta aagttctgct 4620
atgtggcgcg gtattatccc gtattgacgc cggcaagag caactcggtc gccgcataca 4680
ctattctcag aatgacttgg ttgagtactc accagtcaca gaaaagcatac ttacggatgg 4740
catgacagta agagaattat gcagtgcgc cataaccatg agtgataaca ctgcggccaa 4800
cttacttctg acaacgatcg gaggaccgaa ggagctaacc gctttttgc acaacatggg 4860
ggatcatgtta actcgcccttgc atcggtggaa accggagctg aatgaagcca taccaaacga 4920
cgagcgtgac accacgatgc ctgttagcaat ggcaacaacg ttgcgcacac tattaactgg 4980
cgaactactt actctagctt cccggcaaca attaatagac tggatggagg cggataaaagt 5040
tgcaggacca cttctgcgct cggcccttcc ggctggctgg tttattgctg ataaatctgg 5100
agccggtag cgtgggtctc gcggtatcat tgcagcactg gggccagatg gtaagccctc 5160
ccgtatcgta gttatctaca cgacggggag tcaggcaact atggatgaac gaaatagaca 5220
gatcgctgag ataggtgcct cactgattaa gcattggtaa ctgtcagacc aagtttactc 5280
atataactt tagattgatt taaaacttca ttttaattt aaaaggatct aggtgaagat 5340
cctttttagt aatctcatga cccaaatccc ttaacgttag tttcggttcc actgagcggtc 5400
agaccccgta gaaaagatca aaggatctt ttgagatctt tttttctgc gcgtaatctg 5460
ctgcttgcaa aaaaaaaaaac caccgctacc agcggtggtt tgtttgcgg atcaagagct 5520
accaactctt ttccgaagg taactggctt cagcagagcg cagataccaa atactgtcct 5580
tcttagtgtag ccgtatgttag gccaccacctt caagaactct gtgcaccgc ctacataacct 5640
cgctctgcta atccctgttac cagtggctgc tgccagtggc gataagtctgt gtcttaccgg 5700
gttggactca agacgatagt taccggataa ggcgcagcgg tcgggctgaa cgggggggttc 5760
gtgcacacag cccagcttgg agcgaacgcg ctacaccgaa ctgagatacc tacagcgtga 5820
gctatgagaa agcgccacgc ttcccgaaagg gagaaggcgc gacaggtatc cggttaagcgg 5880
cagggtcgga acaggagagc gcacgaggga gcttccagggg ggaaacgcct ggtatctt 5940
tagtcctgtc gggtttcgccc acctctgact tgagcgtcga tttttgtat gctcgtcagg 6000
ggggcggagc ctatggaaaa acgccagcaa cgccgcctt ttacgggttcc tggcctttt 6060
ctggccctttt gtcacatgg ctcgac 6086

<210> 10

<211> 38

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: synthetic oligonucleotide

<400> 10

ttttttttt ttcgtcagcg gccgcacnn nntttatt

38

<210> 11

<211> 25

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: synthetic oligonucleotide

<400> 11

cagatcacta gaagctttat tgccgg

25

<210> 12

<211> 20

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: synthetic oligonucleotide

<400> 12

tttcgtcag cggccgcatc

20

<210> 13

<211> 45

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: synthetic oligonucleotide

<400> 13

actcataggc catagaggcc tatacacagtt aaatttgctaa cgca

45

<210> 14

<211> 43

<212> DNA

<213> Artificial sequence

<221> OTHER

<222> 1

<223> 5' cytosine at position #1 is biotinylated

<223> Description of artificial sequence: synthetic oligonucleotide

<400> 14

ctcgtttagt gcggccgctc agatcactga attctgacga cct

43

<210> 15

<211> 41

<212> DNA

<213> Artificial sequence

<221> OTHER

<222> 1

<223> 5' cytosine at position #1 is biotinylated

<223> Description of artificial sequence: synthetic oligonucleotide

<400> 15

ctcgtttagt ggcgccgcaag atcactgaat tctgacgacc t

41

<210> 16

<211> 22

<212> DNA

<213> Artificial sequence

<221> OTHER

<223> Description of artificial sequence: synthetic oligonucleotide

<400> 16

gacctactga ttaacggcca ta

22

<210> 17

<211> 20

<212> DNA

<213> Artificial sequence

<221> OTHER

<222> 1

<223> 3' thymidine at position #20 is biotinylated

<223> Description of artificial sequence: synthetic oligonucleotide

<400> 17

tcgtcagaat tcagtgtatct

20